

SEQUENCE LISTING

<110> Zimmerman, et al.
 <120> M-CSF MUTEINS AND USES THEREOF
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 <140> To be assigned
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 Trp Leu Gly Ser Leu Leu Leu Leu Val Cys Leu Leu Ala Ser Arg Ser
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 Ile Thr Glu Glu Val Ser Glu Tyr Cys Ser His Met Ile Gly Ser Gly
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 His Leu Gln Ser Leu Gln Arg Leu Ile Asp Ser Gln Met Glu Thr Ser
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 Cys Gln Ile Thr Phe Glu Phe Val Asp Gln Glu Gln Leu Lys Asp Pro
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Val Cys Tyr Leu Lys Lys Ala Phe Leu Leu Val Gln Asp Ile Met Glu	
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Tyr Glu Glu His Asp Lys Ala Cys Val Arg Thr Phe Tyr Glu Thr Pro	
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Pro Val	
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Glu Glu Val Ser Glu Tyr Cys Ser His Met Ile Gly Ser Gly His Leu
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Gln Ser Leu Gln Arg Leu Ile Asp Ser Gln Met Glu Thr Ser Cys Gln
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Ile Thr Phe Glu Phe Val Asp Gln Glu Gln Leu Lys Asp Pro Val Cys
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Tyr Leu Lys Lys Ala Phe Leu Leu Val Gln Asp Ile Met Glu Asp Thr
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Met Arg Phe Arg Asp Asn Thr Pro Asn Ala Ile Ala Ile Val Gln Leu
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Glu His Asp Lys Ala Cys Val Arg Thr Phe Tyr Glu Thr Pro Leu Gln
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Leu Leu Glu Lys Val Lys Asn Val Phe Asn Glu Thr Lys Asn Leu Leu
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Glu Glu Val Ser Glu Tyr Cys Ser His Met Ile Gly Ser Gly His Leu
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Tyr Leu Lys Lys Ala Phe Leu Leu Val Gln Asp Ile Met Glu Asp Thr
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Gln Glu Leu Ser Leu Arg Leu Lys Ser Cys Phe Thr Lys Asp Tyr Glu

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Arg Val Gly Pro Val Arg Pro Thr Gly Gln Asp Trp Asn His Thr Pro
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Gln Lys Thr Asp His Pro Ser Ala Leu Leu Arg Asp Pro Pro Glu Pro
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Ala Arg Pro Leu Pro Arg Phe Asn Ser Val Pro Leu Thr Asp Thr Gly
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His Glu Arg Gln Ser Glu Gly Ser Ser Ser Pro Gln Leu Gln Glu Ser
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Val Phe His Leu Leu Val Pro Ser Val Ile Leu Val Leu Leu Ala Val
500 505 510

Gly Gly Leu Leu Phe Tyr Arg Trp Arg Arg Arg Ser His Gln Glu Pro
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cgcagcagcc agcgagcgag cgagcgagcg agggcgggccg acgcgcccgg ccgggaccca      180
gctgcccgt atg acc gcg ccg ggc gcc gcc ggg cgc tgc cct ccc acg aca      231
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      1              5              10

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Trp Leu Gly Ser Leu Leu Leu Leu Val Cys Leu Leu Ala Ser Arg Ser
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atc acc gag gag gtg tcg gag tac tgt agc cac atg att ggg agt gga      327
Ile Thr Glu Glu Val Ser Glu Tyr Cys Ser His Met Ile Gly Ser Gly
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Cys Gln Ile Thr Phe Glu Phe Val Asp Gln Glu Gln Leu Lys Asp Pro
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Val Cys Tyr Leu Lys Lys Ala Phe Leu Leu Val Gln Asp Ile Met Glu
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gac acc atg cgc ttc aga gat aac acc ccc aat gcc atc gcc att gtg      519
Asp Thr Met Arg Phe Arg Asp Asn Thr Pro Asn Ala Ile Ala Ile Val
95              100              105              110

cag ctg cag gaa ctc tct ttg agg ctg aag agc tgc ttc acc aag gat      567
Gln Leu Gln Glu Leu Ser Leu Arg Leu Lys Ser Cys Phe Thr Lys Asp
              115              120              125

tat gaa gag cat gac aag gcc tgc gtc cga act ttc tat gag aca cct      615
Tyr Glu Glu His Asp Lys Ala Cys Val Arg Thr Phe Tyr Glu Thr Pro
              130              135              140

ctc cag ttg ctg gag aag gtc aag aat gtc ttt aat gaa aca aag aat      663
Leu Gln Leu Leu Glu Lys Val Lys Asn Val Phe Asn Glu Thr Lys Asn
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              195              200              205

cct cat cag ccc ctc gcc ccc tcc atg gcc cct gtg gct ggc ttg acc      855
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Pro Gly Val Leu Leu Leu Leu Leu Val Ala Thr Ala Trp His Gly Gln
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Gly Ile Pro Val Ile Glu Pro Ser Val Pro Glu Leu Val Val Lys Pro
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Gly Ala Thr Val Thr Leu Arg Cys Val Gly Asn Gly Ser Val Glu Trp
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Ser Ile Leu Ser Thr Asn Asn Ala Thr Phe Gln Asn Thr Gly Thr Tyr
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Arg Cys Thr Glu Pro Gly Asp Pro Leu Gly Gly Ser Ala Ala Ile His
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ctc tat gtc aaa gac cct gcc cgg ccc tgg aac gtg cta gca cag gag      634
Leu Tyr Val Lys Asp Pro Ala Arg Pro Trp Asn Val Leu Ala Gln Glu
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Val Val Val Phe Glu Asp Gln Asp Ala Leu Leu Pro Cys Leu Leu Thr
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Gly Gln Gly Ile Pro Val Ile Glu Pro Ser Val Pro Glu Leu Val Val

- 19 -

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Thr Ser Met Phe Phe Arg Val Val Glu Ser Ala Tyr Leu Asn Leu Ser
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Ser Glu Gln Asn Leu Ile Gln Glu Val Thr Val Gly Glu Gly Leu Asn
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Leu Lys Val Met Val Glu Ala Tyr Pro Gly Leu Gln Gly Phe Asn Trp
325 330 335

Thr Tyr Leu Gly Pro Phe Ser Asp His Gln Pro Glu Pro Lys Leu Ala
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Asn Ala Thr Thr Lys Asp Thr Tyr Arg His Thr Phe Thr Leu Ser Leu
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Pro Arg Leu Lys Pro Ser Glu Ala Gly Arg Tyr Ser Phe Leu Ala Arg
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Asn Pro Gly Gly Trp Arg Ala Leu Thr Phe Glu Leu Thr Leu Arg Tyr
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Pro Pro Glu Val Ser Val Ile Trp Thr Phe Ile Asn Gly Ser Gly Thr
405 410 415

Leu Leu Cys Ala Ala Ser Gly Tyr Pro Gln Pro Asn Val Thr Trp Leu
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Gln Cys Ser Gly His Thr Asp Arg Cys Asp Glu Ala Gln Val Leu Gln
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Val Trp Asp Asp Pro Tyr Pro Glu Val Leu Ser Gln Glu Pro Phe His
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Lys Val Thr Val Gln Ser Leu Leu Thr Val Glu Thr Leu Glu His Asn
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Gln Thr Tyr Glu Cys Arg Ala His Asn Ser Val Gly Ser Gly Ser Trp
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Ala Phe Ile Pro Ile Ser Ala Gly Ala His Thr His Pro Pro Asp Glu
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Phe Leu Phe Thr Pro Val Val Val Ala Cys Met Ser Ile Met Ala Leu
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Leu Leu Leu Leu Leu Leu Leu Leu Leu Tyr Lys Tyr Lys Gln Lys Pro
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Lys Tyr Gln Val Arg Trp Lys Ile Ile Glu Ser Tyr Glu Gly Asn Ser
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Tyr Thr Phe Ile Asp Pro Thr Gln Leu Pro Tyr Asn Glu Lys Trp Glu
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Phe Pro Arg Asn Asn Leu Gln Phe Gly Lys Thr Leu Gly Ala Gly Ala
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Phe Gly Lys Val Val Glu Ala Thr Ala Phe Gly Leu Gly Lys Glu Asp
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Asp Glu Lys Glu Ala Leu Met Ser Glu Leu Lys Ile Met Ser His Leu
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Gly Gln His Glu Asn Ile Val Asn Leu Leu Gly Ala Cys Thr His Gly
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Gly Pro Val Leu Val Ile Thr Glu Tyr Cys Cys Tyr Gly Asp Leu Leu
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Pro Gly Gln Asp Pro Glu Gly Gly Val Asp Tyr Lys Asn Ile His Leu
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Glu Lys Lys Tyr Val Arg Arg Asp Ser Gly Phe Ser Ser Gln Gly Val
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Asp Thr Tyr Val Glu Met Arg Pro Val Ser Thr Ser Ser Asn Asp Ser
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Phe Ser Glu Gln Asp Leu Asp Lys Glu Asp Gly Arg Pro Leu Glu Leu
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Arg Asp Leu Leu His Phe Ser Ser Gln Val Ala Gln Gly Met Ala Phe
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Arg Asp Ile Met Asn Asp Ser Asn Tyr Ile Val Lys Gly Asn Ala Arg
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Thr Val Gln Ser Asp Val Trp Ser Tyr Gly Ile Leu Leu Trp Glu Ile
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